9-26-1988

Contribution of the 1982 and Subsequent Year Class Females to the Virginia 1987 Commercial and Recreational Harvest

Herbert M. Austin
Virginia Institute of Marine Science

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Herbert M. Austin

Virginia Institute of Marine Science
School of Marine Science
College of William and Mary
Gloucester Point, Virginia 23062

26 September, 1988

Marine Resource Report 88-8

1987 Commercial landings

The legal Virginia striped bass fishery in 1987, as documented by Virginia Marine Resources Commission (VMRC) landings data was June-November. Most fish were reported to have been harvested from pound nets in the main-stem Bay during October (Tables 1-3). Catches reported here are those from Virginia waters and do not include Potomac River landings. Normally, the Rappahannock River has yielded the largest fall catch. In 1987 however, there was but a small gill net fishery and these were either moved across the tail-gate or went to packing houses not monitored by VMRC. A total of 2,211 pounds were harvested and reported, worth $3,789 by Virginia commercial fishermen.

The Virginia Institute of Marine Science (VIMS) monitored "special" pound nets catches on the Rappahannock River during the Spring. These "special" catches were from pound nets fished by waterman with a special licence to collect fish for VIMS. Fish were sold to VIMS and no one else. This allowed the VIMS Anadromous Fish Program personnel that were looking at the sex-year class composition on the spawning ground (Figure 1), and tagging fish as part of the cooperative striped bass program to secure and release fish from the spawning population.

It is unfortunate that so few reported fish were taken in 1987 from the Rappahannock. Consequently, VIMS was not able to collect biological data from the fish during the fall fishery. Past data have shown that the fall fishery is composed of smaller/younger fish with males and females in a 50:50 ratio (Austin, 1987), whereas the Spring fishery is composed of the larger/older mature fish with females comprising over 75% of the fish over 24".

It has been the Virginia position that >24" females are absent from the Bay during Summer and Fall while they participate in the coastal migration. Although we were unable to actually take direct measurements from the commercial or recreational fisheries, the tagging program provided length frequency data from their pound net catch-releases (Figure 2) (Loesch, Hill and Kriete, 1988). These data support the position that while there are larger (>600mm, 23.6") fish on the spawning reaches during Spring there are few during Summer-Fall. A total of four >600mm fish were collected from 3,319 fish (.012%) taken from the the Rappahannock during Fall, 1987.

Spring sex composition frequencies of the various year classes are shown in Table 4 for 1988. These numbers are both for the ratio (percentage) of each sex by year class, and for those over 24 inches.

The question as to what percent Virginia is contributing to the exploitation of the 5% of the 1982 and subsequent year classes cannot be determined by direct measurement since no data are available for Atlantic Coast Stock size. An estimate of the impact of the fishery on the year class can be made however, from inference. If the 2,211 pounds commercial catch composed 75% of the total Virginia catch, and the recreational catch is assumed to be 25% of the total (Austin, 1986, 1987), then the Virginia recreational catch was 737 pounds, and the total Virginia landings 2,948 pounds. Three percent were taken in the ocean (Table 1) and therefore subject to coastal size

limits in effect at the time. This leaves 2,860 pounds harvested in the Bay and subject to the 24" size limit.

In previous years (1985-1986) when the size limit was 18", and fewer legal sized "1982 and subsequent year class" fish participated in the coastal migration, the male:female weight ratio in the fall commercial catch was 50:50. As these fish have matured, and entered the Summer-Fall coastal migration fewer >24" females remain in the Bay. It is clear from Figure 2 that this is the case and that the Virginia 24" size limit and 6-month closed season is protecting 1982 and younger females. To assume a worst case however, if the sex composition in the main-stem Bay is different from the tributaries, the Spring 1988 sex ratios for >24" fish have been used to infer a maximum theoretical impact.

If we assume (from Table 4),

1. that female fish of the 1980 and older year classes were absent from the Bay during the fall fishery due to normal migration patterns (Figure 2),

2. and that 66% of the 1981 year class females, 42% of the 1982 year class, and 11% of the 1983 year class were 24" or more, and

3. based upon the length frequencies in Figure 2, that there were essentially no >24" females of any year class in the Rivers during the open season,

4. that females contributed 50% of the weight of the main-stem Bay fishery (1,430 pounds), and

5. females of the 1981 year class comprised 17.7% of the commercial harvest, 1982 females 56.2%, and 1983 females 26.1%.

5. Considering an average weight of 10.8 pounds for a 1981 female, 6.8 for a 1982 female, and 7.3 for a 1983 female, then

the total Virginia's waters of the Chesapeake Bay female stock contributed as follows:

1981	17.7%	253 pounds	24 fish
1982	56.2	804	118
1983	26.1	373	51

Of these, 1,177 pounds, or 169 fish were females of the "1982 and subsequent year classes".

Recruitment index

The 1988 Virginia recruitment index was 7.8, the second highest ever recorded. Higher even than the 1970 year class (Figure 3). As in 1987, the Rappahannock (14.6) continued to be the leading producer followed by the James (7.0) and York (5.1) Rivers. The three year running average for 1986-1988 is 9.4.

Acknowledgements

Landings data for this report were provided by the Statistics Branch of VMRC.

Juvenile index data were provided by Dr. James Colvocoresses from his unpublished 1988 survey; and sex-age-size data were provided by the VIMS Anadromous Fish Project (Dr. J. Loesch, PI). Ms L. Blumberg provided the computer runs for the data and developed the graphics.

Literature Cited

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Austin, H. 1987. Contribution of 1982 and Subsequent Year Class Females to the Virginia 1986 Striped Bass Commercial and Recreational Harvest. VMRR-87-11, 7 pp.

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Table 1. Commercial striped bass landings by water area for Virginia, 1987.

Water	Pounds	Percentage	Value	Percentage
Atlantic Ocean	71	4	111	3
Chesapeake Bay	2,130	96	3,663	97
York River	10	<1	15	<1
Total	2,211	100	3,789	100

Table 2. Commercial striped bass landings by gear for Virginia, 1987.

Gear	Pounds	Percentage
Otter trawl	13	<1
Pound net	1,800	82
Gill net	348	16
Hand line	50	2
Total	2,211	100

Table 3. Commercial striped bass landings by system and month for Virginia, 1987.

Month*	Atlantic Ocean lbs	%	Chesapeake Bay lbs	%	York River lbs	%	Total lbs	%
Jan								
Feb								
Mar								
Apr								
May								
Jun			35	2			35	2
Jul			2	<1			2	<1
Aug								
Sep								
Oct	18	25	1,217	57	10	<1	1,245	56
Nov	53	75	876	41			929	42
Dec								
Total	71	4	2,130	96	10	<1	2,211	100

* - closed season December 1 - May 31

Table 4
Contribution of Year Classes to the Fall 1987 Virginia Catch
(Estimated from Spring 1987 sex-size-age measurements)

Year Class	Number Females	Number Males	Percent of Total Females	Total Catch >24"TL	Females >24"TL	Total Weight >24"TL	Weight Females >24"TL	Aver. Weight > 24"TL
77	1	0	*	1	1	23	23	*
78	5	1	*	6	5	99	99	20
79	1	0	*	1	1	13	13	*
80	7	2	77%	7	5	88	74	14.8
81	11	7	61	12	7	116	69	10.8
82	60	31	66	38	32	272	219	6.8
83	64	105	38	18	14	126	102	7.3
84	32	69	32	0	0	-	-	-
85	13	24	48	0	0	-	-	-
	194	239	45%	83	65	737(514)	599(390)	**

* Too few to compute

** Total for included year classes in "( )" 1981-1983)

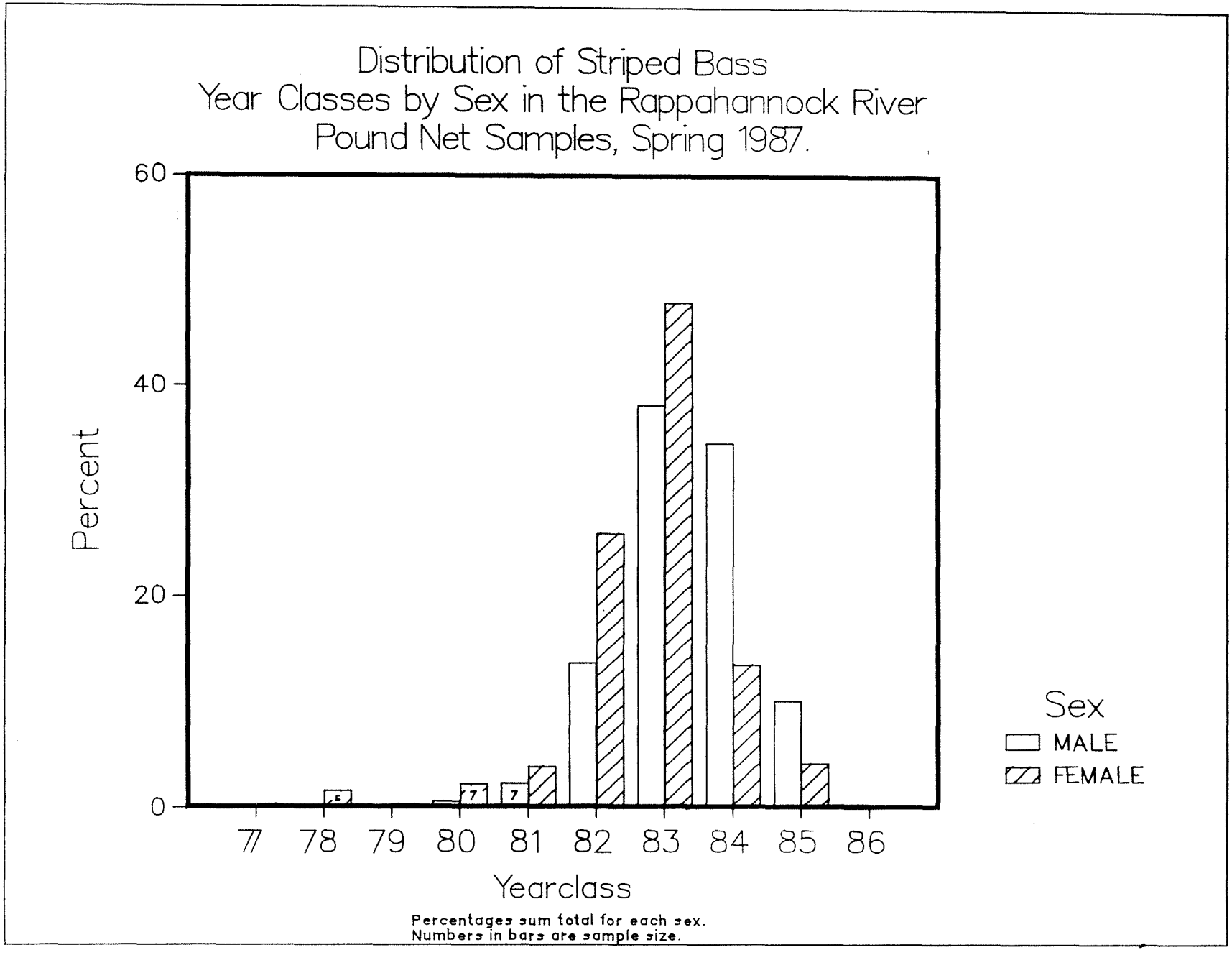
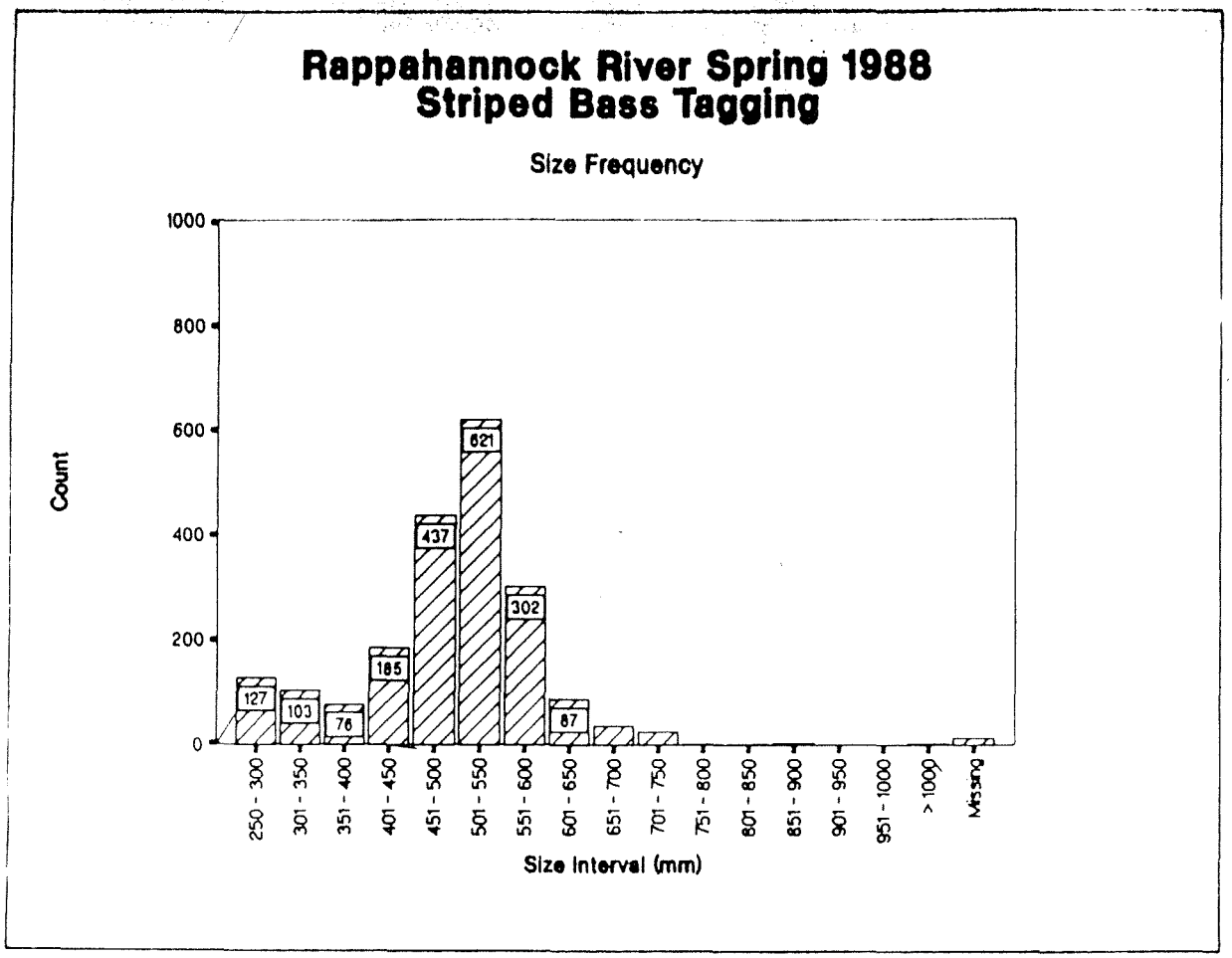
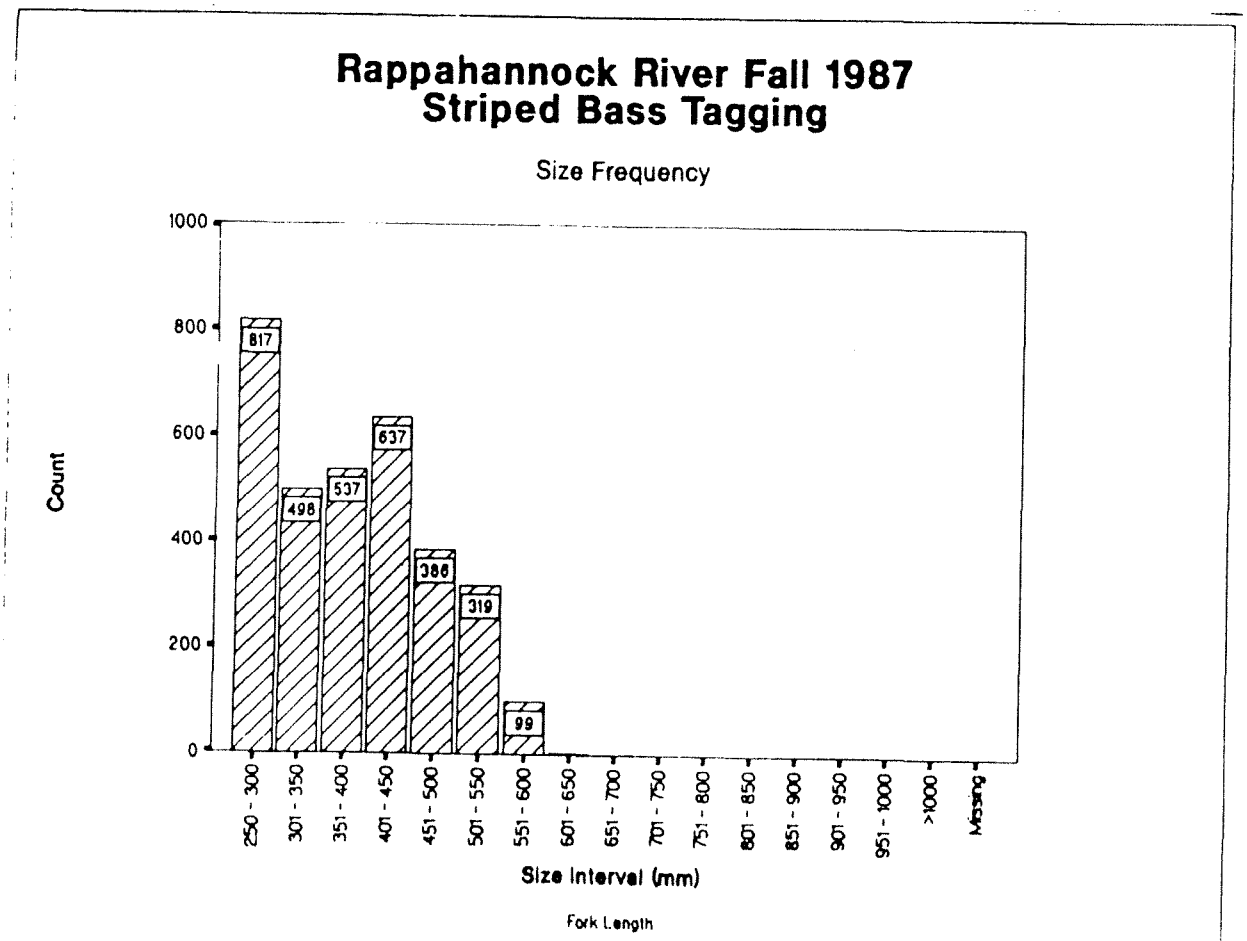
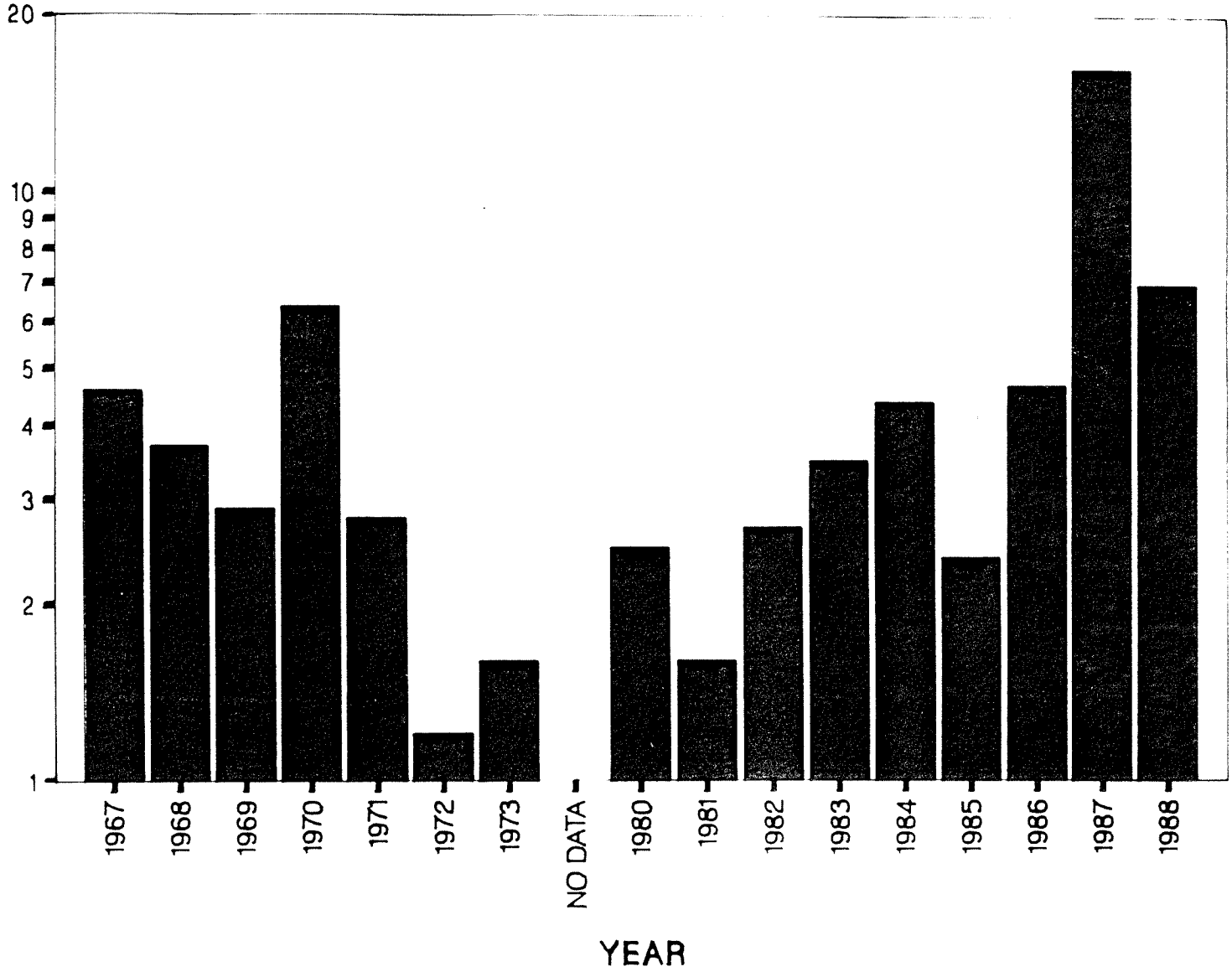

Distribution of Striped Bass
Year Classes by Sex in the Rappahannock River
Pound Net Samples, Spring 1987.
60
40
20
0
Percent
6
7
7
77
78
79
80
81
82
83
84
85
86
Yearclass
Sex
MALE
FEMALE
Percentages sum total for each sex.
Numbers in bars are sample size.

Figure 1


Rappahannock River Spring 1988
Striped Bass Tagging
Size Frequency
Count
1000
800
600
400
200
0
127
103
76
185
437
621
302
87
250 - 300
301 - 350
351 - 400
401 - 450
451 - 500
501 - 550
551 - 600
601 - 650
651 - 700
701 - 750
751 - 800
801 - 850
851 - 900
901 - 950
951 - 1000
> 1000
Missing
Size Interval (mm)


Rappahannock River Fall 1987
Striped Bass Tagging
Size Frequency
Count
1000
800
600
400
200
0
817
498
537
637
386
319
99
250 - 300
301 - 350
351 - 400
401 - 450
451 - 500
501 - 550
551 - 600
601 - 650
651 - 700
701 - 750
751 - 800
801 - 850
851 - 900
901 - 950
951 - 1000
>1000
Missing
Size Interval (mm)
Fork Length

VIRGINIA STRIPED BASS
YOUNG-OF-THE-YEAR INDEX



DATA PROVIDED BY
DR. JAMES COLVOCORESSES, VIMS